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ON THE OCCURRENCE OF ARTIFACTS BENEATH A
DEPOSIT OF CLAY.

BY DR. CHARLES CONRAD ABBOTT.

(Read April 8, 1904.)

A recent examination of the surface soils of a shallow valley-like depression in upland fields, elevated 50-70 feet above the Delaware River and its flood-plain, made evident that the present little brook was not the original and only watershed of this tract of land, but the remnant of a stream of greater volume which had at one time practically filled the valley. To reach the flood-plain of the present river, the brook of to-day passes through a deep valley that has been worn into the face of the bluff that extends for a long distance parallel to the river's course. A bird's-eye view of the region shows at a glance that when the present flood-plain was permanently under water, the gully did not exist in its present width and depth and the greater volume of the present brook emptied directly into the river. As the river's volume decreased and the stream confined itself to the channel now existing, the brook wore away the face of the bluff until it reached the abandoned river bed or what is now a wide meadow, ordinarily dry and cultivable, but occasionally overflowed to a considerable depth.

In a cross-section of the upland valley, extending over two hundred feet in width, it was found that immediately below the present soil and deeper sand as yet unaffected by decomposition of vegetable matter, there was a well-defined deposit of clean, sharp river sand, a few pebbles and a trace of clay that resulted in a slight cementation of the mass. Besides this condition, there was at one part of the section, some forty feet in extent, a deposit of clay, comparatively free from grit and so compact that no object could have intruded. It was nine inches in thickness and twenty-four inches from the surface of the ground to its base, which was compact coarse sand, pebbles and a little clay. Resting on this base, an unquestionable bed of a water-course, were artifacts, consisting of flakes of argillite, artificially produced and the hammer-stones, or oval pebbles, with the ends battered by continued violent contact with other minerals.

A closer examination of the spot indicated clearly that the clay

was derived from beds of Raritan clay, near the head of the valley. For some reason, not now definable, this clay, taken up from the bed of original deposition, was redeposited in a circumscribed area and, as it proved, at a point where previously traces of man had been lost in the waters of a prehistoric stream. Later, this upland stream had decreased in volume, shrinking to the present trifling brook. The bed of the greater stream had become choked with vegetation and eolian sands had drifted in until the valley was no longer well defined; its one-time features finally disappearing when forest trees for centuries thickly dotted the ground. For how long this condition continued it is impossible to determine. When the valley was a forested tract the Indian was in possession. For somewhat more than two centuries the forest has been gone and the ground under more or less constant cultivation, but the valley is still to be traced.

In the mid-autumn of 1903 there was a phenomenal flood in the Delaware River. The water rose to a height unrecorded by man, and the river reasserted its right to the flood-plain and beyond, for its waters flowed up the ravine and the hillside brook became for the time a navigable stream for a considerable distance. It was clearly a return for a time to those ancient days when the entire condition of the country was essentially different from what now obtains—when little brooks were considerable creeks, when creeks were rivers, and the river itself a stream that approached the present Mississippi in magnitude; and when this was true of the tamer conditions of to-day, not only man but an arctic fauna lived here. We can only refer such conditions to the closing days of the Glacial Epoch. The question of Glacial Man in North America, so long a vexing problem, has been found easier of solution than was to be hoped for. The evidence above given is not a single instance of deeply inhumed artifacts in undisturbed stratified deposits; but is submitted as a typical example of many such that have been brought to light by the author and other workers in the same field.

Trenton, N. J., April 7, 1904.